APPENDIX A

1 (Previously Presented). A virtual photonics switching system comprising:

multiple photonics network elements comprising photonics network nodes and photonics network switches;

optical fibers connecting the photonics network elements; and

an O-UNI server optically connected to at least one of the photonics network elements including:

at least one memory for storing information pertaining to photonics network nodes registered with the O-UNI server;

a communication circuit for receiving a connectivity request from a first registered photonics network node for a connection with a second registered photonics network node; and

connection logic for determining compatibility of the first and second registered photonics network nodes;

the communications circuit providing instructions to photonics network switches upon verifying compatibility of the first and second registered photonics network nodes to search for an end-to-end wavelength path and establish the connection between the first registered photonics network node and the second registered photonic network node.

2 (Original). The system of claim 1, wherein the O-UNI server further comprises a web menu for providing a user with a selection of available services.

3 (Original). The system of claim 1, wherein the connection logic determines technology compatibility.

4 (Previously Presented). The system of claim 1, wherein the photonics network nodes include photonics network service nodes and photonics network access nodes.

5 (Previously Presented). The system of claim 4, wherein the photonics network service nodes comprise core routers or video servers.

6 (Previously Presented). The system of claim 4, wherein the photonics network access nodes comprise multiplexers or edge routers.

7 (Previously Presented). The system of claim 1, wherein the O-UNI server further comprises fault management tools for determining when an error has occurred in establishing the connection.

8 (Previously Presented). The system of claim 1, wherein the photonics network elements, the optical fibers, and the O-UNI server comprise a protocol agnostic private network, provided that communicating photonics network nodes use an identical communication protocol.

9 (Previously Presented). The system of claim 1, wherein the O-UNI server further comprises registration tools for registering photonics network nodes and collecting information including number of ports, wavelengths per port, and bandwidth per wavelength.

10 (Previously Presented). A method for establishing automatic service connectivity in a network between multiple photonics network elements comprising photonics network nodes and photonics network switches connected by optical fibers, each optical fiber carrying multiple wavelengths of signals, wherein the photonics network elements optically communicate with an O-UNI server, the method comprising:

registering photonics network nodes by collecting information about each photonics network node;

storing information pertaining to each registered photonics

network node at the O-UNI server;

receiving a connectivity request from a first registered photonics network node for a connection with a second registered photonics network node;

determining compatibility of the first and second registered photonics network nodes; and

instructing photonics network switches upon verifying compatibility of the first and second registered photonics network nodes to search for an end-to-end wavelength path and establish the connection between the first registered photonics network node and the second registered photonics network node.

11 (Original). The method of claim 10, further comprising providing the O-UNI server with a web menu for providing a user with a selection of available services.

12 (Original). The method of claim 10, wherein the step of determining compatibility comprises determining technology compatibility.

13 (Previously Presented). The method of claim 10, further comprising using photonics network service nodes and photonics network access nodes as the photonics network nodes.

14 (Previously Presented). The method of claim 13, further comprising providing core routers or video servers as photonics network service nodes.

15 (Previously Presented). The method of claim 13, further comprising providing multiplexers or edge routers as photonics network access nodes.

16 (Previously Presented). The method of claim 10, further comprising performing fault management for determining when an error has occurred in establishing the connection.

17 (Previously Presented). The method of claim 10, further comprising forming a protocol agnostic private network provided that communicating photonics network nodes use an identical communication protocol.

18 (Previously Presented). The method of claim 10, wherein the step of registering photonics network nodes comprises collecting information including number of ports, wavelengths per port, and bandwidth per wavelength.

19 (Previously Presented). An O-UNI server adaptable for use in a virtual photonics switching system having a plurality of photonics network elements comprising photonics network nodes and photonics network switches, the O-UNI server comprising:

at least one memory for storing information pertaining to each photonics network node registered with the O-UNI server;

a communication circuit for receiving a connectivity request from a first registered photonics network node for a connection with a second registered photonics network node; and

connection logic for determining compatibility of the first and second registered photonics network nodes;

the communications circuit providing instructions to photonics network switches upon verifying compatibility of the first and second registered photonics network nodes to search for an end-to-end wavelength path and establish the connection between the first registered photonics network node and the second registered photonics network node.

20 (Original). The O-UNI server of claim 19, further comprising a web menu for providing a user with a selection of available services.

21 (Original). The O-UNI server of claim 19, wherein the

connection logic determines technology compatibility.

22 (Previously Presented). The O-UNI server of claim 19, further comprising fault management tools for determining when an error has occurred in establishing the connection.

23 (Previously Presented). The O-UNI server of claim 19, further comprising registration tools for registering photonics network nodes and collecting information including number of ports, wavelengths per port, and bandwidth per wavelength.

24 (Original). The O-UNI server of claim 19, further comprising address management tools for address resolution and assignment.

25 (Original). The O-UNI server of claim 19, further comprising accounting management tools for managing data associated with service usage.

26 (Previously Presented). The O-UNI server of claim 19, further comprising security management tools for managing allocation and authentication of access passwords of the photonics network nodes.